

## Magnetic Sensor ICs

**Continuous-Time Ratio-metric  
Linear Hall-Effect Sensor IC****AS1242****● General Description**

The AS1242 is small, versatile linear Hall effect devices which are operated by the magnetic field from a permanent magnet or an electromagnet. They are optimized to accurately provide a voltage output that is proportional to an applied magnetic field. These devices have a quiescent output voltage that is about 50% of the supply voltage.

The Hall-effect integrated circuit included in each device includes a Hall sensing element, a linear amplifier, and a CMOS Class AB output structure. Integrating the Hall sensing element and the amplifier on a single chip minimizes many of the problems normally associated with low voltage level analog signals.

High precision in output levels is obtained by internal gain and offset trim adjustments made at end-of-line during the manufacturing process.

The integrated circuitry provides increased temperature stability and sensitivity, for both linear target motion and rotational motion. These linear position sensors have an operating temperature range of -40°C to +125°C, appropriate for industrial environments. They respond to either positive or negative gauss, monitoring either or both magnetic poles. The quad Hall sensing element minimizes the effects of mechanical or thermal stress on the output. The positive temperature coefficient of the sensitivity helps compensate for the negative temperature coefficients of low cost magnets, providing a robust design over a wide temperature range.

The AS1242 is available in DFN1014-4L, SOT89-3L, TSOT23-3L and SOT23-3L package, and is rated over the -40°C to +125°C. These packages are available in a lead (Pb) free version.

**● Features**

- Input Voltage Range : 3.0V to 5.5V
- Fast Power-on Time
- Power consumption of 6.5mA/5V
- Single Current Sinking or Current Sourcing Output
- Linear Output For Circuit Design Flexibility
- Temperature Stable Quiescent Output Voltage
- Quad Hall Sensing Element For Stable Output
- Responds to Either Positive or Negative Gauss
- Robust EMC Protection
- Small Solution Size
- RoHS & Green Compliant
- DFN1014-4L, SOT89-3L, TSOT23-3L and SOT23-3L Packages
- -40°C to +125 °C Temperature Range

**● Applications**

- Current Sensing
- Motor Control
- Linear Position Sensing
- Magnetic Code Reading
- Rotary Position Sensing
- Ferrous Metal Detector
- Vibration Sensing

## Ordering Information

### AS1242XXX

Package: ST: SOT23-3L  
 TW: TSOT23-3L  
 SY: SOT89-3L  
 D: DFN1014-4L

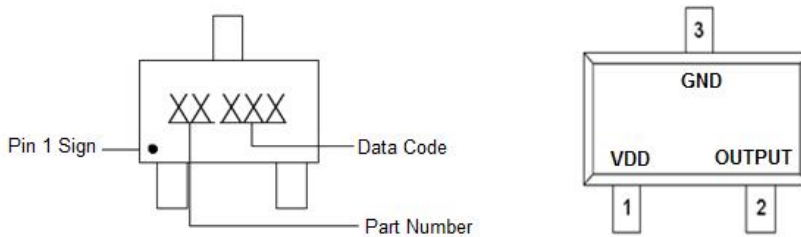
Packing: R: Tape&Reel

Temperature Grade: Y: -40°C~125°C

Part Number	Sensitivity (Typ.)	Package Type	Package Qty	Temperature	Eco Plan
AS1242STRY	2.9mV/Gauss	SOT23-3L	7-in reel 3000pcs/reel	-40~125°C	Green
AS1242TWRY	2.9mV/Gauss	TSOT23-3L	7-in reel 3000pcs/reel	-40~125°C	Green
AS1242SYRY	2.9mV/Gauss	SOT89-3L	13-in reel 3000pcs/reel	-40~125°C	Green
AS1242DRY	2.9mV/Gauss	DFN1014-4L	7-in reel 3000pcs/reel	-40~125°C	Green

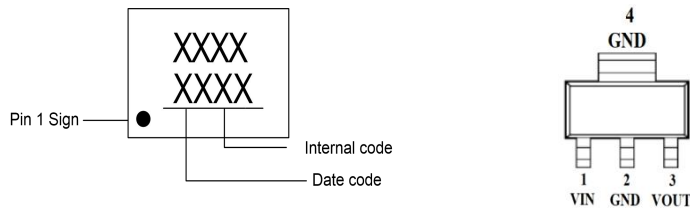
## Marking & Pin Assignment

### SOT23-3L/TSOT23-3L:



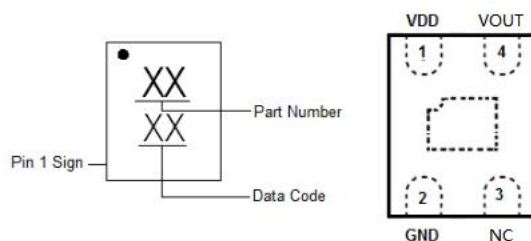
Pin Name	Pin No.	I/O	Pin Function
	SOT23-3L/TSOT23-3L		
VDD	1	P	Input Power Supply
GND	3	P	Ground
OUTPUT	2	O	Output Pin

### SOT89-3L:

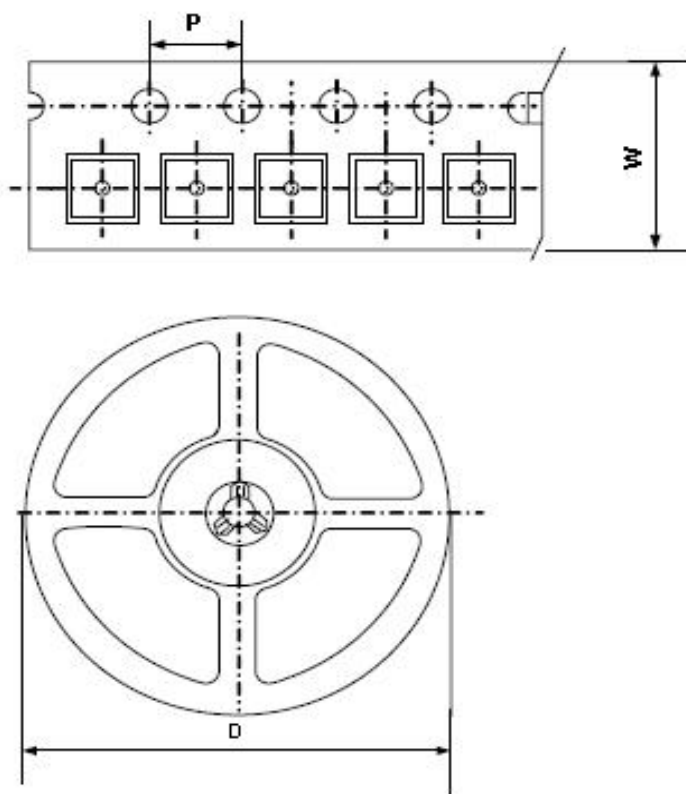


Pin Name	Pin No.	I/O	Pin Function
	SOT-89		
VOUT	3	O	Output Pin
GND	2	P	Ground
VDD	1	P	Input Power Supply
GND	4	P	Connected to GND

### DFN1014-4L:



■ Packing Information



Package Type	Carrier Width(W)	Pitch(P)	Reel Size(D)	Packing Minimum
SOT23-3L	8.0±0.1 mm	4.0±0.1 mm	180±1 mm	3000pcs
TSOT23-3L	8.0±0.1 mm	4.0±0.1 mm	180±1 mm	3000pcs
DFN1014-4L	8.0±0.1 mm	4.0±0.1 mm	180±1 mm	3000pcs
SOT89-3L	12.0±0.1 mm	4.0±0.1 mm	330±1 mm	3000pcs

Note: Carrier Tape Dimension, Reel Size and Packing Minimum